CLAIMS

What is claimed is:

1. A crystal form of 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate anhydrous salt.

2. The crystal form according to claim 1, comprising high-intensity diffraction peaks at diffraction angles (2θ) of about 3.6, 17.2, 17.6, 18.8, 19.2, 20.4 and 22.1 in the powder X-ray diffraction analysis.

3. The crystal form according to claim 2, comprising a powder X-ray diffraction pattern having characteristic peaks expressed in degrees (2θ) at approximately:

Angle 2 theta	Angle 2 theta	Angle 2 theta
3.6	16.9	23.4
6.2	17.2	25.1
7.2	17.6	25.5
9.5	18.8	26.0
10.8	19.2	26.7
12.3	19.7	27.6
12.5	20.4	28.2
13.8	21.7	28.5
14.5	22.1	29.0
16.0	22.6	29.9

4. The crystal form according to claim 3, wherein said salt has a powder X-ray diffraction pattern substantially the same as the powder X-ray diffraction pattern shown in Graph 1.

5. The crystal form according to claim 1, wherein said anhydrous salt is (+)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate.

6. The crystal form according to claim 1, wherein said anhydrous salt is 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (-)-2,3-dihydroxy butanedioate.

7. The crystal form according to claim 5, wherein said anhydrous salt is (+)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (-)-2,3-dihydroxy butanedioate

8. The crystal form according to claim 1, wherein said anhydrous salt is (-)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate.

9. The crystal form according to claim 1, wherein said anhydrous salt is 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (+)-2,3-dihydroxy butanedioate.

10. The crystal form according to claim 9, wherein said anhydrous salt is (-)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (+)-2,3-dihydroxy butanedioate.

11. The crystal form according to claim 1, wherein said anhydrous salt has a melting point of 189°C.

12. A crystal form of 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate hydrate salt.

13. The crystal form according to claim 12, comprising high-intensity diffraction peaks at diffraction angles (2θ) of about 5.1, 8.1, 18.2, 18.8, 20.2, 20.8, 23.6, 25.8 and 26.0 in the powder X-ray diffraction analysis.

14. The crystal form according to claim 13, comprising a powder X-ray diffraction pattern having characteristic peaks expressed in degrees (2θ) at approximately:

Angle 2-theta	Angle 2-theta	Angle 2-theta
5.1	19.9	26.0
8.1	20.2	26.7
12.7	20.8	27.6
13.9	21.4	28.1
14.6	21.7	28.7
15.2	22.8	30.2
15.3	23.6	31.2
16.4	24.1	32.1
16.8	24.4	33.1
18.2	24.8	34.4
18.8	25.5	36.8
19.3	25.8	37.4

15. The crystal form according to claim 14, wherein said crystal form has a powder X-ray diffraction pattern substantially the same as the powder X-ray diffraction pattern shown in Graph 2.

16. The crystal form according to claim 12, wherein said hydrate is (+)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate.

17. The crystal form according to claim 12, wherein said hydrate is 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (-)-2,3-dihydroxy butanedioate.

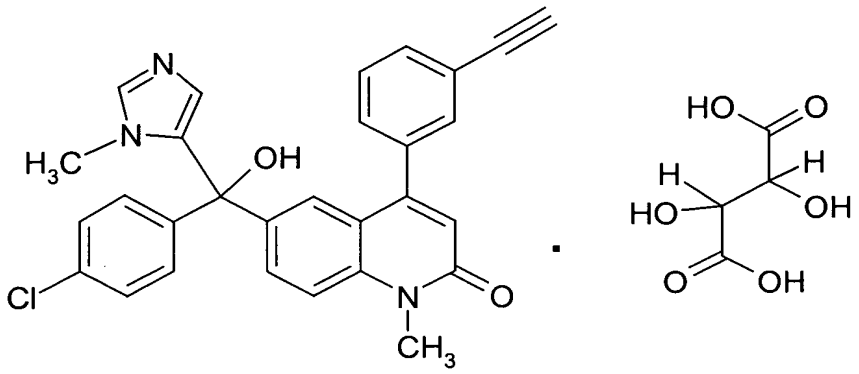
18. The crystal form according to claim 17, wherein said hydrate is (+)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (-)-2,3-dihydroxy butanedioate

19. The crystal form according to claim 12, wherein said hydrate is (-)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate.

20. The crystal form according to claim 12, wherein said hydrate is 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (+)-2,3-dihydroxy butanedioate.

21. The crystal form according to claim 20, wherein said hydrate is (-)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (+)-2,3-dihydroxy butanedioate

22. A process for preparing a salt having the formula



comprising treating 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one with tartaric acid which provides high-intensity diffraction peaks at diffraction angles (2θ) of 5.1, 8.1, 18.2, 18.8, 20.2, 20.8, 23.6, 25.8 and 26.0 in the powder X-ray diffraction pattern.

23. The process of claim 22, wherein said process is carried out in a mixture of THF and water.

24. The process of claim 22, wherein said salt is (+)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (-)-2,3-dihydroxy butanedioate hydrate salt.

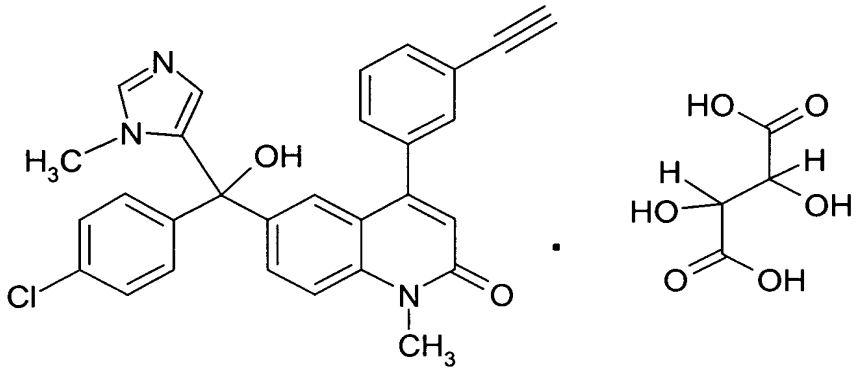
25. The process of claim 22, wherein said salt is (-)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (+)-2,3-dihydroxy butanedioate hydrate salt.

26. A process for preparing 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate anhydrous salt comprising azeotropic removal of water from 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, 2,3-dihydroxy butanedioate hydrate salt.

27. The process of claim 26, wherein said anhydrous salt is (+)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (-)-2,3-dihydroxy butanedioate anhydrous salt.

28. The process of claim 26, wherein said anhydrous salt is (-)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (+)-2,3-dihydroxy butanedioate anhydrous salt.

29. A process for preparing a salt having the formula



comprising treating 6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one with tartaric acid in a polar solvent at an elevated temperature to form an anhydrous crystal form which provides high-intensity diffraction peaks at diffraction angles (2θ) of about 3.6, 17.2, 17.6, 18.8, 19.2, 20.4 and 22.1 in the powder X-ray diffraction pattern.

30. The process of claim 29, wherein said salt is (+)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (-)-2,3-dihydroxy butanedioate anhydrous salt.

31. The process of claim 29, wherein said salt is (-)-6-[(4-chloro-phenyl)-hydroxy-(3-methyl-3H-imidazol-4-yl)-methyl]-4-(3-ethynyl-phenyl)-1-methyl-1H-quinolin-2-one, (+)-2,3-dihydroxy butanedioate anhydrous salt.

32. The process of claim 29, wherein the polar solvent is ethyl acetate.

33. A method of treating a hyperproliferative disorder in a mammal which comprises administering to the mammal a therapeutically effective amount of a compound according to claim 1.

34. The method of claim 33, wherein the method is for the treatment of a cancer selected from brain, squamous cell, bladder, gastric, pancreatic, breast, head, neck, oesophageal, prostate, colorectal, lung, renal, kidney, ovarian, gynecological and thyroid cancer.

35. A method for the treatment of a hyperproliferative disorder in a mammal which comprises administering to the mammal a therapeutically effective amount of a polymorph according to claim 1 in combination with an anti-tumor agent selected from the group consisting of mitotic inhibitors, alkylating agents, anti-metabolites, intercalating antibiotics, growth factor inhibitors, cell cycle inhibitors, enzymes, topoisomerase inhibitors, biological response modifiers, anti-hormones, and anti-androgens.

36. A pharmaceutical composition comprising an amount of a compound according to claim 1 effective to treat a hyperproliferative disorder in a mammal, and a pharmaceutically acceptable carrier.

37. The pharmaceutical composition of claim 36, wherein the hyperproliferative disorder is a cancer selected from brain, lung, squamous cell, bladder, gastric, pancreatic, breast, head, neck, renal, kidney, ovarian, prostate, colorectal, oesophageal, gynecological and thyroid cancer.

38. The pharmaceutical composition of claim 36, wherein the composition is adapted for oral administration.

39. The pharmaceutical composition of claim 38, wherein the pharmaceutical composition is in the form of a tablet.

40. A pharmaceutical composition comprising a therapeutically effective amount of a compound of clam 1 and a pharmaceutically acceptable carrier.